

AN  
INTRODUCTORY DISCOURSE

ON

MEDICAL EDUCATION,

DELIVERED TO THE STUDENTS

OF

GENEVA MEDICAL COLLEGE,

OCTOBER 1, 1844.

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By CHARLES A. LEE, A. M., M. D.,

Professor of General Pathology and Materia Medica in Geneva College.

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Πρὶν γαρ ζωεσκον επὶ χθονὶ φυλ' ανθρωπὸν  
Νοσφίν ατερ τε κακῶν, καὶ ατερ χαλεποῖο πονοῖο,  
Νουσῶν τ' ἀργαλεῶν, 'αιτ' ανδρασὶ γηρασὶ εδῶκαν.  
*Hesiod, Opera et Dies, v. 90.*

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GENEVA MEDICAL COLLEGE, OCT. 31, 1844.

Professor LEE:

DEAR SIR—At a meeting of the Medical Class of Geneva College, on yesterday, CYRUS POWERS in the chair, a resolution was unanimously adopted that we request of you a copy of your Introductory Address for publication. Allow us to say that it gives us great pleasure to comply with their request.

Yours respectfully,

GEO. C. HAY,  
D. B. DEVENDORF,  
E. F. HUTCHINSON,  
H. B. SHANK,  
ROBERT HUNTER.

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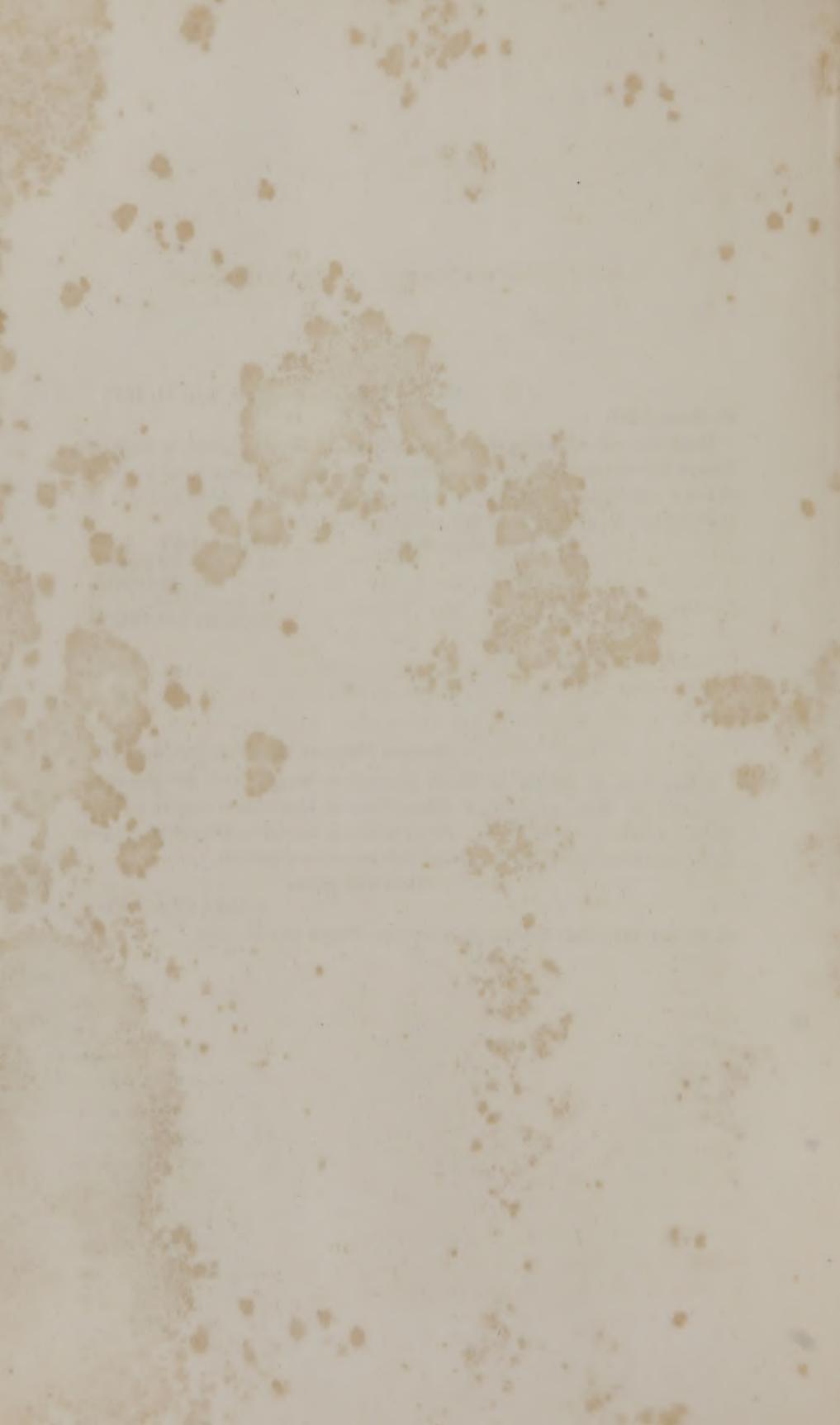
GENEVA MEDICAL COLLEGE, NOV. 1, 1844.

GENTLEMEN—It affords me much pleasure to comply with the unanimous wishes of the Class, as conveyed through you, in furnishing a copy of my Introductory Address for publication. Please convey to the Class, and accept for yourselves, gentlemen, the assurance of my high respect and esteem.

Most truly yours,

CHARLES A. LEE.

To Messrs. HAY, DEVENDORF, HUTCHINSON, SHANK and HUNTER.



## INTRODUCTORY DISCOURSE.

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**GENTLEMEN:** The time has arrived for commencing the tenth annual course of instruction in Geneva Medical College. It is an occasion full of interest to each one of us. Many of us have now, for the first time, entered these halls; whether for good or for evil, for honor or dishonor, remains as yet among the secrets of the future. We have come up hither from remote parts of our land: from the noisy, bustling city; from the quiet hamlet; from the pleasant village. We have left the peaceful scenes of domestic life; have for a time bidden adieu to our friends and kindred: and here we are assembled, in furtherance of an object deeply interwoven with our own earthly destiny, and with the well-being of our fellow-men. It becomes us, gentlemen, to give our thoughts and reflections such a turn, on the present occasion, as may be productive of profit as connected with the duties which lie before us. It is no time for rhetorical display, were the speaker capable of it—which he is not. It is no time for the discussion of topics of a general character, which have no particular bearing upon the business that has called us together. But it is a time to pause; to collect our thoughts; to inquire what it is that we are now about to undertake, and how we may best set ourselves about it. It is a great point gained, to find out *what* is to be done, and then *how* to do it.

I assume then that you have assembled here for the acquisition of medical knowledge, to qualify yourselves to practice successfully the healing art; an art so ancient in its origin, so philanthropic in its aims, so beneficial in its results, as to have been universally regarded by the ancients as the gift of the gods to men. You come with minds fully resolved to prosecute your studies with zeal, energy and perseverance, and to ply your utmost faculties in the attainment of medical science. Knowing full well that you have engaged in one of the noblest as well as the most difficult of all pursuits, you have determined to consecrate your lives to a cause which has ever engaged the best faculties of the human mind, and one which is worthy of its highest powers. I am persuaded that you feel the arduousness, the deep responsibilities of

your undertaking, and that you need no promptings on my part, to raise your minds to a full conception of its real nature and importance. With such convictions of duty, gentlemen, resting upon you, and such motives prompting you to action, allow me to welcome you to this Institution; to extend to you the right hand of fellowship; and to pledge you, in behalf of myself and colleagues, our entire devotion to your interests—our unceasing endeavors to promote your progress.

On this occasion, I propose to call your attention to some of the motives which ought to govern you in the choice of a profession; the nature of the preliminary education necessary to its successful prosecution; some of the branches which the science embraces; and lastly, the spirit in which your studies should be conducted.

Gentlemen: it becomes you to scrutinize well your motives in entering upon the study of medicine, and see whether they are such as will stand the test of a candid examination. It will not do to delay this until you are fairly launched upon professional life; for then it will be too late. It must be done now or not at all. Some young men, it is to be feared, enter upon the study of our profession with a very vague conception of the qualifications necessary, not only for success in life but for the satisfactory performance of the duties which it necessarily involves. They consequently soon become dissatisfied; they talk much of the drudgery, the degrading nature of the offices which they are called on to discharge; of the low estimation in which their calling is held by the public; of the paltry compensation they receive for their services; of the great prevalence of quackery; of the hardships they are called to endure: and, if they do not themselves turn quacks, or engage in some other kind of business, they go on grumbling all their days, making themselves and all around them unhappy; and all this happens in consequence of having made a wrong choice of a profession.

Again: Others commence the study of medicine, because, as one of the learned professions, it is, in their estimation, more honorable and dignified than mechanical or agricultural pursuits, and will give them a certain standing in society somewhat more elevated than attaches to the latter. I need not say, gentlemen, that such views are entirely erroneous. The time has been, and now is in other countries, when such an opinion prevailed; but it is so no longer. So wide-spread and so deeply-rooted, in our land, is the conviction of the natural equality of mankind, and of the fundamental rights which that natural equality confers upon every human being, that the different trades and professions stand upon the same level; and no one, in consequence of the calling in which he is engaged, can claim the least superiority over another. But here, where we have no nobility but that of the mind, no immortality but that which springs from worthy thoughts and noble

deeds, such a claim can no more be conceded than that of the divine right of kings or the expediency of a hereditary nobility. If any individual should assume any superiority in consequence of his calling, it will not be long before he will discover that his position is a very uncomfortable one; very different from what it would be in a country where society is made up of well-defined grades and orders, and where there is a recognized aristocracy.

Again: There is reason to suppose that some engage in the study of medicine, because they believe it will afford an easier mode of support than agriculture or the mechanic arts. But those who have been engaged for any time in the practice of our profession, whether in the city or country, will tell you that this is altogether a mistake; that there is no calling in which the body and the mind are so severely tried; none in which more arduous labor is demanded. Where is the trade or profession that requires more unremitting toil, in which the mind is so often painfully exercised? in which anxiety and responsibility are so constantly experienced? in which there is such frequent deprivation of rest and sleep? and where the duration of life is so uniformly shortened in consequence of the hardships, mental and corporeal, to which we are exposed, as that of medicine? Gentlemen, there is perhaps no profession with which ours may, in this respect, with more justice be compared, than that of *arms*. The trials and the hardships of both are very similar. The soldier and the physician are equally exposed to atmospheric vicissitudes—to all kinds of weather: storm and wind, heat and cold, sunshine and tempest come alike to both: marching and counter-marching, by night and by day; the former at the command of his superior officer—the latter self-moved at every summons of suffering humanity: through miry swamp or tangled forest, following an Indian trail or on the macadamized road; it is all the same to both. Sleeping upon their arms, ready at the first alarm to seize their weapons and encounter the enemy, whether at a distance or in close, mortal combat: promptness, energy, courage and decision, alike necessary to both; to both a mind fertile in expedients, rich in the treasured resources of recorded experience and actuated by the conviction of right, and the desire to discharge their whole duty; there would really seem but little difference between the two professions, and that so far as mere worldly ease and comfort is concerned, a man might as well be enrolled among the followers of Mars, as the disciples of *Æsculapius*. But, gentlemen, here the similarity ends. If you follow the soldier into the practical application of his art and science; and the physician in his errands of mercy, you find them engaged in a very different manner; the one brings all his resources, his skill, his courage and his strength to bear upon the destruction of life; the other to preserve it: the one seeks to

mar and destroy God's image, the other to build up and to save. The one racks his invention to contrive weapons of a more destructive kind; the other, the true conservative, to find means to prolong human existence. They are in short the antipodes of each other in every thing except toil and hardship, which are equally the heritage of both.

Again: Some turn their attention to the medical profession because they are unsuited for every thing else: in the open competition of the bar they could not for a moment expect to succeed, for here imbecility and stupidity become as apparent as the sun at noon-day. In the pulpit concealment would be almost as difficult: they can here hope to pass for no more than they are really worth; counterfeit coin is soon detected and stamped as base, and so they turn their attention to medicine, where deception and cunning can better supply the place of talent and learning. There is no profession in which ignorance and charlatanism have such a boundless field, so wide a theatre on which to operate, as that of medicine. But this field is narrowing every day: in proportion as a knowledge of the structure and functions of the human body becomes diffused among the people; which is now rapidly happening, through popular works and lectures; in the same proportion will every species of quackery be rooted out and imposture stand revealed to the light of day.

Shall we err in supposing, that some engage in medical study merely from mercenary motives, with the view solely of acquiring wealth, and the distinction that wealth confers? If such individuals do not succeed in the regular practice of their profession, we often see them resorting to dishonest tricks and artifices, or turning off into some of the thousand by-paths of quackery, reckless alike of their own reputation, and that of the profession to which they claim to belong. I know not, gentlemen, a more humiliating spectacle than to see a physician devoted, soul and body, to the acquisition of wealth; influenced by no love of science, prompted by no generous or noble impulses of our higher natures, indifferent to all improvements and discoveries in our art, except as they may be turned to his own individual advantage; a stranger to the love of philosophic truth; with instincts all quickened and awake to the advancement of his own interests—the increase of his own sordid gains—but his soul deadened to all the tender sensibilities. He heeds not the complaints of suffering humanity, but pursues his routine path, indifferent whether he scatter “firebrands, arrows and death,” or is instrumental in restoring to health and happiness, provided he is only putting money in his own pocket. It is such men that bring our profession into disgrace, and reduce it, in point of respectability, below the humblest mechanic arts. Gentlemen, I trust that you have all engaged in your present pursuits from a full conviction of the intrinsic importance and uti-

lity of medical science; with feelings of benevolence and good will to the universal brotherhood of man; from no mercenary or selfish motives, but with a sincere desire to do all the good you can in the world, knowing full well that there is no other profession that promises such extensive opportunities of being useful to your fellow-men, and that too, in their hour of greatest need, and intensest suffering. To the benevolent mind—to the heart that sympathises with human sorrow, what employment can possibly afford a more sincere delight, than that of binding up the broken heart; ministering to the body and the mind diseased; watching the returning glow of health, as it mantles over the lately pallid and sunken cheek—seeing the smile once more light up the countenance; strength again invigorating the limbs; hope reanimating the breast; while joy and gratitude warm the heart? How paltry and insignificant do pecuniary considerations appear when viewed in comparison with such rewards as these! And as we pass along through life, and feel that the time may be at hand when we shall need the same services and the same attention that we have bestowed upon others, how cheering the reflection that, in the hands of Providence, we have been instrumental in relieving the distresses of our fellow-men—of following, though at a distance, in the footsteps of our divine Master; whose earthly mission was devoted to the cure of moral and physical disease. Gentlemen, it will be a consolation, at such an hour, to know and to feel, that we have not lived altogether in vain—that we have been useful to mankind—that the world has been made happier through our humble efforts—that when we shall have passed away, and bid a last farewell to earthly scenes and earthly sufferings, we shall leave behind us a name and an example, of which our friends need not be ashamed. Usefulness, Gentlemen, you will find to be one of the great means of human happiness. The profession of medicine is one of prominent usefulness, and there is no greater benefactor of the race than the devoted, faithful and conscientious physician.

If then your motives have been carefully weighed; if you have counted the cost ere you began to build; if, after a full and candid survey of the whole ground, you have deliberately made up your minds to persevere, happen what may, in the spirit and integrity of true-hearted men, bent on doing good, then, Gentlemen, I bid you God speed; your course will be like the rising light that shines more and more unto the perfect day. If your minds are well disciplined and your studies well directed, you are prepared for the certain and successful attainment of your objects; for you have the promise of the “life that now is and of that which is to come;” and you will find, that notwithstanding the drawbacks I have named, there is *that* in our profession—glorious rewards for duties faithfully and conscientiously performed—which will amply repay you

for all the toil and study, and labor and sacrifices, which it entails upon you.

There is not one of you, I trust, who does not aspire to the character of a well educated physician; for such only are needed, such only can be extensively useful, and such the public have a right to expect you to be. But what are we to understand by a good medical education? What kind, and what amount of knowledge will entitle you to such a character? There are different standards of attainment, as there are different grades of intellect; there are different shades of importance attached to different departments of medicine, according to the constitution of individual minds. But all must agree that to form an accomplished physician at the present day, demands an extent and variety of attainment, a union of qualifications of no ordinary kind. The physician of to-day is not the physician of the last century, nor even of fifty years ago. What would then have served to qualify for the practice of the healing art, would now scarcely fit one for the office of an intelligent nurse. The science of that period bore no more resemblance to that of our day, than that which was taught by Galen or Paracelsus. The faithful descriptions of disease, handed down to us from former generations, are all that is really valuable, which we have inherited from the past. In this respect, the writings of Hippocrates have never been surpassed, and are as useful guides, to us, as they were to the physicians of the age in which they were written. I need not stop to point out in what respect medical science of our times differs from that of all preceding ages; how pathological and general anatomy have been created; how our methods of diagnosis have been improved—legal medicine, and analytic and pathological chemistry sprung into existence; how numerous useful collateral sciences have arisen; and how all have advanced with giant strides, under the guidance of the inductive philosophy. Gentlemen, it needs no great amount of intelligence to perceive that the times are changed, and medicine has assumed a new livery. Mankind seem to have arisen from the torpor of ages, and taken a new start on the milky way of science. The starting point of to-day was the goal of our grandfathers. The constellations of science are revolving round the grand centre of truth, with as great celerity as the planetary system revolves around the centre of light and heat. As members of a learned profession, or as candidates for it, we belong to this glorious galaxy, or should belong to it; let us see that our light is not eclipsed by the brighter beams of other stars of greater magnitude; let us take care, lest, while this constellation is thus progressing through the regions of scientific space, we acquire too great a share of the *vis inertia*, and so fly off into that limbo of fools, beyond its “flaming bounds,” in some “*terra incognita*.”

Education, to be worthy of the name, implies the thorough training of the whole man—moral, intellectual and physical—no part of our nature can be neglected without producing a distortion—a caricature: and to no class of men is this self-evident truth so important as to members of the medical profession. The reason is obvious. It is because the proper discharge of the duties devolving on us, requires the full possession, the constant exercise of all our faculties. Imagine, if you please, a physician of the highest endowments of mind, but destitute of moral virtue, of truth, honor, justice, pity, or benevolence; or of a sense of accountability to a higher Power. Is such a man to be trusted with the lives and health of his fellow-men? Is he a safe depositary of secrets? Is there any principle in his nature which entitles him to the confidence, the respect, the love of the community? Will he be satisfied with doing good for its own sake, with no other reward than the consciousness of having performed a worthy deed? Or, on the other hand, will the highest moral attainments qualify for the successful practice of our art; an art not based upon a barren collection of practical precepts, handed down from past ages and requiring but a limited degree of intelligence to put into successful operation, but one that reposes on the established principles of science, the result of critical analysis and rigid logical induction, from a vast array of facts, developed by long and careful investigation. The gift of healing is no longer a miraculous power; it neither resides in the seventh son, the royal touch, nor the prayers of a Hohenlo; it is not a gift of nature, nor an accidental endowment; but it is the result of a cultivated intellect under the guidance of moral principle, acting on comprehensive stores of knowledge, the fruit of laborious study and incessant application and research.

But suppose a physician to be endowed with the highest moral and intellectual qualifications, but wanting in physical energy, in bodily health, what will all his acquisitions profit him so long as his failing strength incapacitates him for their application? Extensive usefulness in our profession, is incompatible with feeble corporeal powers; hence the importance of cultivating them in youth and early manhood, to enable us to bear up against the fatigues, the privations, the anxieties incident to our calling.

And now, need I point out how our different faculties are to be improved? Need I add that it is only by persevering and constant exercise? The mechanic does not expect to acquire skill from studying the theory of his art; he knows that perfection is only to be acquired by years of diligent practice. This law of exercise is of universal application, extending not only to the senses, reason, perception, memory, and judgment, but also to the moral feelings and the physical powers. Indeed, it would even seem to extend throughout nature, embracing inan-

imate bodies; for we find that the power of the magnet is increased by gradually suspending to it a greater weight; and musical instruments improve in tone and excellence by being played on by masters in the art. You know how the sense of feeling is improved in the blind by constant use; how the arm of the smith, or the stone-cutter, gains a vast increase of size and strength by the same habit of exercise; and, in like manner, all the capacities of man are enlarged and strengthened. Gentlemen, this principle lies at the foundation of a good medical education, as it does of every other. It has long been acted upon with respect to the handicraft arts and trades, all employments in which manual dexterity is required; but strange to say, as a necessary preparation for the practice of the healing art, such an apprenticeship of study and mental discipline, has been deemed a matter of very little importance. In consequence of these mistaken views, a suitable preparatory education appears to have been lost sight of; young men have left the plough or the work-shop, and plunged at once into the depths of medical philosophy, with no plumbum to sound its abyss, no compass to guide them on their voyage; no rudder by which to shape their course towards their destined port. No wonder then, that, instead of a prosperous voyage to the haven of science by favorable gales, under a serene sky and smiling heavens, they should have been baffled by head-winds, storms and tempests; with no sun to shine upon their path, no moon nor stars by which to take an observation, till, at last, wearied, disheartened, discomfited, with honor and reputation gone, the loss of every thing overboard, they have gladly drifted, at the mercy of the elements, upon the bleak and inhospitable shores of quackery.

A successful prosecution of medical science, presupposes a certain amount of preparatory education. As the moral virtues are to be inculcated by precept, example and exercise; as the child is to be trained to kindness, benevolence, truth, justice and compassion, by a long course of actual practice; so is it also with our reasoning and observing faculties. If you inquire into the previous habits of those who have risen to distinction in the walks of medicine, you will generally find that their minds have been thoroughly disciplined by previous study; by familiarity with premises and logical sequence, and by frequent attempts at comparison and illustration. So also the orator acquires copiousness and fluency of speech by the habit of clothing his thoughts with words; and feelings of veneration towards the great Author of our being, are continually strengthened by the frequent habit of devotion. Gentlemen, we should never forget that we are engaged in prosecuting one of the most difficult of all the sciences; one in which a cultivated intellect is of paramount importance; a science which reposes for its foundation on well authenticated facts; in which causation is to be constantly sought out;

for we can not proceed a single step without a knowledge of causes, in which general principles are to be constantly deduced ; and to do all this requires the exercise of various mental operations—attention, memory, conception and abstraction: faculties which must be constantly exercised if we wish to separate truth from falsehood, or to have any opinions of our own on the important subjects that are to occupy our attention. It is far too common for medical men to allow others to do their own thinking ; to follow in the wake of some overshadowing name—some venerated authority—and thus to have no settled principles, the result of their own investigation, on the great questions of theoretical and practical medicine. This deference to great names, this want of mental independence, which is the besetting sin of our profession, calling loudly for reform, often arises from a want of early mental culture, from a neglect of that salutary mental discipline which gives control over the intellectual powers; makes reasoning a pastime, and logical thinking an unconscious operation of the mind. Think you, gentlemen, that the mind, any more than the body, can, without training or preparatory discipline, put forth all its powers, and bring into full and successful exercise, its various faculties? If you have entertained any such opinion, I beseech you to dismiss it from your minds, without delay, for it will prove a most fatal delusion, when too late, perhaps, for correction.

“Qui studet optatam cursu contingere metam,  
Multa tulit, fecit que puer, sudavit et alsit.”—Hor.

I trust that all of you who are engaged in the study of medical science, have gone through such a preliminary course of discipline, as to thoroughly qualify you for the successful prosecution of the objects in view; and that your minds will prove as alert, flexible and apt to exertion as your muscles are for bodily exercise. If you have not, you will labor under many disadvantages; you will probably be bewildered by the numerous subjects to which your attention will be called; you will not, like the fabled Ariadne, find a thread to guide you out of the labyrinth; you will not be able to bring order out of confusion, light out of darkness, or beauty out of chaos; you will not, perhaps, succeed in tracing the relations which exist between the different branches of our science, or reduce to proper order the multitude of facts which go to constitute the foundation of medical theories. But these difficulties are by no means insuperable. You are young, and have time to rectify errors and supply deficiencies. Though you know not now the extent of your own powers, yet this you know, that they will all gain strength by exercise; and that industry is the law of their development. You may find it difficult to fix the attention long upon any one subject; but steady application will soon overcome this; you may not be able now, to reason with facility and correctness, but this difficulty will also disappear; and

if you will only keep before your minds an ideal standard of perfection at which you constantly aim, you will not only attain to usefulness in life, but acquire a reputation and a name that shall live when your usefulness here is at an end.

Those of you who have not enjoyed the advantages of an academic or collegiate course, need not be discouraged. If you will but make the most of your time, and be not in too great haste to enter upon the practical duties of your profession, you can accomplish much, and by unwearyed diligence bear away the palm from those who, lacking this, have enjoyed far greater privileges than you. It is astonishing what accumulations of knowledge result from the careful improvement of all our time and opportunities. One of the most learned and accomplished physicians of my acquaintance, was the son of a poor laboring man, and had only the advantages of a common district school education for a few winters. He studied medicine without a teacher, while he was at the same time supporting himself by teaching school. He entered upon practice in a new and thinly settled part of the country at the age of twenty-five; and now, at the age of fifty-five, although he has been all his life employed in the active duties of his profession, he has few, if any, superiors in it, in the variety and extent of his learning. He reads with perfect facility, ten different languages, and has a partial acquaintance with several others: he has carefully studied the mathematical works of Newton, Euclid, Playfair, Lacroix, Hutton, and La Place, including his "*Mecanique Celeste*"; he has perused Hippocrates, Galen, and Celsus, with the more important French and German medical writers, in their original tongues; and is now fully up to the times in every department of medical science and its collateral branches; besides possessing a very accurate and extensive acquaintance with the best works on history, government, law and religion. He daily reads the sacred Scriptures, but not in a translation, and finds time to discharge all the other duties of life, as if there was nothing else to occupy his attention. The secret of all this is, that he wastes no time in idleness or frivolous amusements; lives a life of temperance; and turns every moment to some valuable account. Gentlemen, you can all go and do likewise.

I should but poorly discharge the duty which I have undertaken, did I not call your attention to some of the more important preliminary branches of education, which should be pursued by every medical student.

The study of medicine presupposes a good knowledge of the English language; an ability to read, write and speak it with grammatical accuracy; and no one should think of entering upon professional study, or at any rate, of graduating in medicine, without a thorough acquaintance

with the philosophy of his own vernacular tongue. Of so little importance would this seem to be regarded by the medical institutions of our country, that it is not even noticed as a prerequisite of graduation by any of them, except the University of Pennsylvania, which requires "good spelling and attention to the rules of grammar" in the thesis submitted by the candidate. It is much to be regretted that our Medical Colleges do not establish some scale of academic attainments, as necessary prerequisites for graduation; for nothing would tend so directly to enhance the respectability of our profession, and entitle its members to the increased confidence of the public, as the possession of those literary attainments which go to make up what is considered an accomplished education. It is also highly desirable that the medical student should become acquainted with the Latin and Greek languages, though I am aware that some of the most distinguished names in our profession have been, to a great extent, or altogether, ignorant of them. But when we consider that the technology of our art has been chiefly derived from the Greek; that it has served for the formation of the different compound terms employed in science; that the ablest medical works of antiquity are locked up in it; that many thousand words in English are derived from the Latin through it; that the prescriptions in our medical works are generally written in Latin; that most of our anatomical terms are derived from this language; that the diplomas of our Colleges and Universities, (which those who receive certainly ought to be able to translate,) are couched in it; that it is a universal language with the learned, and one in which has been written a greater number of medical works than perhaps any other, it would certainly seem that medical men should acquire, if not a critical, yet at least an adequate knowledge of these tongues. If it is said that an acquaintance with them is not indispensable, it can not be denied that it is at least very useful. The professional phraseology of medicine as well as law, may indeed be learned through a lexicon, but this is almost superceded by a knowledge of these languages. Not only from their immediate practical utility would I recommend to you the study of the Greek and Latin languages, but also from their influence in disciplining the faculties to persevering and patient inquiry, as a powerful means of mental training. Those who would do away with classical study, as an element of medical education, would seem to have entirely overlooked its principal object and design. They take it for granted, that it serves only to store the mind with ideas; and that if it can not be the medium of conveying ideas, which we could not derive through our own mother tongue, it must be labor entirely misdirected, and useless. Gentlemen, this is a very narrow and incorrect view of the subject. I do not maintain that there are any thoughts locked up in the Latin and Greek, which can not

be distinctly conveyed by means of translations into our own vernacular tongue; but what I do maintain and insist upon, is this, that by their study, the mental faculties are so disciplined and brought under control, that the individual can better apply them to advantage in the investigation of any other subject that may come before him. The great end of medical education, we are truly told, is to enable a class of men to discriminate and cure disease. But how is this to be done? How are the discriminating powers to be trained except by appropriate exercise? Were medicine a science of pure observation, there would be some plausibility in the objection; but it embraces principles which are to be deduced by a process of reasoning; doctrines which depend on vast generalizations, requiring the highest powers of intellect to comprehend and digest into a consistent system of scientific truth. Can any one believe that a mind, disciplined by the study of the classics—an exercise which brings all the intellectual faculties into active operation—is not better fitted for the pursuit of medical science, than one which has skimmed over the surface of the current literature of the day, scarcely resting as long on any one subject as the bee rests upon each individual flower? If you doubt the necessity of this intellectual training, take the uneducated man, and set him to investigate any question in morals, in medical, legal, or political science. He will soon acknowledge that he lacks the ability to concentrate his thoughts, his attention upon the matter in hand; he is a stranger to the powers of abstraction, of judgment, of memory, and of logical reasoning, and he soon abandons his attempt in despair.

But it may be said, as it has been, that there have been great men, men of eminent usefulness, who knew nothing of Latin and Greek, and yet who have distinguished themselves not only in the walks of science, but of polite literature. Ben Johnson tells us that Shakspeare had "small Latin and less Greek;" and Franklin, Rittenhouse, Watt, Arkwright, Hutton, Brindley, Leslie, Stevenson, Perkins, Fulton, Biflon, Davy, Cuvier and Washington, had no knowledge of these languages. The celebrated Dr. Armstrong, as you may know, was rejected by the College of Physicians and Surgeons of London, for his ignorance of Latin and Greek: and yet these are names that will ever shine on the scroll of fame, as brilliant examples of intellectual greatness, and as benefactors of their race. This is true; but yet who can say that even these men, eminent as they were, and useful as their lives have proved to mankind, might not have accomplished still more, had they enjoyed the advantages of early mental discipline through the study of the classics? Besides, these and other similar instances should be regarded rather as exceptions to a general rule. A comprehensive survey of our species shows us that some men are born to greatness: that

is, they have such an organization impressed on them by nature, as easily to surmount all difficulties, and rise, as Saul stood among the Israelites, head and shoulders above ordinary men. Such a man, pre-eminently, was Washington. He would have achieved greatness under almost any circumstances. His noble intellect would have shone forth, even amidst the back woods of Western Virginia, had not the blackness of war furnished such a favorable back-ground on which, as on a canvass, might flash forth the splendor of his genius. But few such minds appear in a century; and it is absurd to reason from these few to the many. We must take men as they are, and form such rules and principles as will apply to the masses. Because there are instances of natural talent so strong as to break through all barriers, and in the face of every conceivable disadvantage attain distinction in the different branches of science, or in civil, military or political life, where not only all facilities of education are wanting, but even access to necessary books denied; we certainly have no right to conclude that therefore all education is useless, and that time spent in mental culture and discipline is, for all useful purposes, wasted and thrown away. With equal propriety might we conclude that, because some men have rendered their names illustrious in the annals of our race, without a knowledge of the literature of the ancients or the study of their languages, that therefore all such study is unnecessary and destitute of all practical utility.

Moreover, what a fund of enjoyment, what inestimable resources in the hours of fatigue, of leisure, or of adversity, has that man who can turn to the pages of classic lore with ever new delight, and feast upon the mental banquet that ever there lies open before him. Certainly, we may apply to them the language of the Roman orator on another occasion: "These studies are the intellectual nourishment of youth and the cheering recreation of age; they adorn prosperity and are the solace and refuge of adversity; they are pleasant at home and are no incumbrance abroad; they abide with us by night, go with us in our travels, and lend additional charms to the attractions of our rural retreats."

Let me then urge you, as far as your circumstances will permit, to the ardent and diligent pursuit of classical learning. Those of you who have neglected it, know not what treasured riches, what prolific elements of intellectual power, may be found in the glowing pages of Grecian and Roman literature. In their study, there is scarcely a single intellectual faculty but what is brought into vigorous exercise: the attention must be constantly on the alert; the memory must never flag; the discriminating power must be in continual requisition; in the application of principles and the choice of words, the judgment is constantly brought to bear; while, at the same time, the taste and the imagination

are cultivated, and the mind acquires the faculty of combining simple and analyzing complex ideas. Did time permit, I might also speak of the influence of classical studies in leading to a clear and correct understanding of the force of words, so conducive to the future development of the understanding and the acquisition of knowledge; so vastly important in communicating knowledge to others or in acquiring it for ourselves. As many of the disputes in science, especially in medicine, have arisen from using terms in different senses, it would seem that this tendency of the study of languages should commend them to the favorable consideration of medical men.

But whatever difference of opinion may prevail with respect to the advantages derived from the study of the Greek and Latin, there is no dispute in relation to those which flow from an acquaintance with the French and German languages. No one, desirous of excelling in the learning of his profession, can willingly remain ignorant of them, for they abound in medical works of the highest interest and value, which have not been translated into English, and they furnish the record of the most important discoveries and improvements in medicine. Indeed, no one can keep pace with the progress of our science, unless he is able to peruse the works that are constantly being issued from the press in those countries. Occasionally some of their best productions are translated into our tongue, and a brief synopsis of others is now and then transferred to the pages of some of our medical periodicals; still, the great mass remains beyond the reach of the mere English scholar, constituting a mine of intellectual wealth which he only can explore who has a knowledge of their languages.

As a branch of intellectual culture and discipline, the study of the mathematics has always occupied a high rank in the estimation of the learned. In certainty; in the precision of its signs; in its completeness and independence of all other branches, this science stands alone, and its study is admirably calculated to give precision and exactness of thought and expression. When pursued to a considerable extent, it has been supposed to give a partial direction to the mind, and unfit it for pursuits of a different character, but perhaps there is little danger in your case, from this source; and I may therefore recommend you to devote to it as much of your time as you can spare from your other more urgent avocations. You will find that nothing expands and elevates the mind more than the acquisition of a mathematical truth, the demonstration of some grand law which is obeyed throughout the universe. But though the prosecution of mathematical science does not call into exercise the powers of observation, of discrimination and of judgment, it nevertheless teaches us to conceive with clearness; to connect our ideas in a train of dependence; to reason with strength and

demonstration; and to distinguish between truth and falsehood. "We should study the mathematics," says Locke, "not so much to make us mathematicians as to make us reasonable creatures." And Lord Bacon observes, that "the pure mathematics do remedy and cure many defects in the wit, and faculties intellectual. For if the wit be dull, they sharpen it; if too wandering, they fix it; if too inherent in the sense, they abstract it." I have thought that mathematical studies exerted a peculiarly happy influence as preparatory to the pursuit of medical science; leading the mind along, as it were, step by step, from the known to the unknown; from axiom to demonstration; from one proposition to another; forming a golden chain, whose value depends on the soundness and entireness of each individual link.

"Whatever link you strike,  
Tenth, or ten-thousandth, breaks the chain alike."

When we read in Euclid that "things equal to the same are equal to one another," and "the whole is greater than its parts," we are perhaps at first disposed to smile at the simplicity of such self-evident propositions; but as we proceed, we soon perceive their use in the demonstration of other problems of a more recondite and abstruse character. And so in the study of medicine. The mind, trained to mathematical pursuits, first inquires what constitutes the axioms, the basis on which the science rests. Such a man does not begin to construct his pyramid at the apex, but he digs deep and lays the first stone where neither frosts nor rains nor any other disturbing cause can reach. He sees that anatomy, chemistry and physiology lie at the foundation of medicine. After learning the structure, he proceeds to make himself acquainted with the healthy functions; in other words, the offices and uses of the different parts or organs of the body in their natural and healthy condition; and then the phenomena exhibited by them in disease; and so on from the simple to the more complex, exactly as when mastering the propositions of Euclid. Let such a person plunge at once into the mysteries of pathology, or of therapeutics, and he sees instinctively what is wanting; he works his way out of the labyrinth without difficulty, and beginning in the right way, goes on successfully, until all difficulties are vanquished and overcome. Reverse the order, and it is as if a person should commence the study of mechanics with the steam engine; chemistry with organic matter; or algebra with Newton's Principia.

It is presumed no one will deny that a knowledge of Natural History ought to constitute part of a complete medical education; including in this, comparative anatomy and physiology, zoology and botany; and yet from the apparent desire of lowering, rather than of raising, the standard of learning in our profession, I should not be surprised ere long, to find even this dispensed with. As the competition among our medi-

cal schools has increased, and the rage for graduating large numbers gone on *pari passu* with the multiplication of incorporated colleges, the requirements for the doctorate have been gradually curtailed, so that in a short time, there is reason to fear, that every thing will be dispensed with, except a three years' course of study. And yet, as far back as the year 1767, according to the regulations of the Philadelphia school of medicine, the first medical school established in the United States, a student was not permitted to take even a bachelor's degree in medicine, until 'he satisfied the trustees and professors, of his knowledge in the Latin language, and such branches of mathematics and natural and experimental philosophy as shall be judged requisite to a medical education.'

Of botany and chemistry I shall speak more particularly hereafter; of general physiology I have only time to offer a few suggestions.

It is generally admitted that human physiology can only be properly studied by a constant reference to the comparative structure and functions of many different classes of animals; and accordingly we find that most works on this science are prepared with an outline of the development and actions of each system in the inferior tribes, as well as a similar view of the comparative structure and functions of vegetables. Cuvier has very truly remarked that the different forms of animals may be regarded, "as so many kinds of experiments ready prepared by nature, who adds to or deducts from each of them, different parts just as we might wish to do in our laboratories, showing us herself at the same time their various results." Adopting this idea, that the laws of life can only be searched for with a probability of success by investigating their operations wherever presented to us, and that the study of physiology can only be scientifically prosecuted if the attainment of these laws be regarded as its ultimate object, by embracing within its range the examination of the phenomena exhibited by *all* classes of living beings, Dr. Carpenter has carried out this plan in his "Principles of General and Comparative Physiology," in a most interesting manner, presenting such a view of the various gradations among organized beings as to enable us to appreciate correctly the true nature of the several functions that characterize vitality. Comparative physiology has taught us also this important fact, that in proportion as the structure becomes more complex the functions also become more numerous and perfect; it has also elucidated many phenomena in the economy of man which have hitherto remained wrapped in doubt and obscurity.

But we can neither understand human nor comparative physiology without some knowledge of other branches of natural philosophy: as the human body is a machine constructed upon exact mechanical principles, we must have some acquaintance with the principles of *mechanics* in order to understand its movements, and Dr. Gregory tells us that a know-

ledge of the principles of *hydraulics* is necessary to enable us to understand the laws which regulate the motions of the different fluids, circulating as they do in the system through tubes of different diameters. No one, at any rate, can deny that the eye is an admirable optical instrument, and that the phenomena of vision cannot be well explained without a knowledge of the principles of *optics*. Nor is it less clear that as the body is surrounded by atmospheric air, which is subject to great changes, both as regards its temperature, moisture, gravity, &c., some knowledge of *pneumatics* is very desirable to the medical man. Other similar examples might be given, showing the importance of an acquaintance with the different branches of natural philosophy to those engaged in prosecuting medical studies, but as our time will not allow further discussion on this head, I pass on to other topics.

Too much importance can scarcely be attached to the study of *anatomy*; a science now universally regarded as constituting the foundation of medicine; teaching, as it does, the material structure or organization of living beings, and involving a knowledge of all the conditions which combine to complete the structure and conformation of animated bodies.

I need not say then that too much attention can not be paid to this demonstrative branch of our science; one which, apart from its eminent utility, appeals to your observing faculties, now the most active of all, while it pleases that fondness for certainty, which elsewhere sometimes seeks for gratification in vain.

*Physiology* will be taught, as it always ought to be, in connection with anatomical structure. How natural, when learning the structure of an organ, to inquire into its mode of action, its uses: to separate them would be like studying the different parts of a watch, or the mechanism of a steam engine apart from the uses to which the different pieces are subservient.

*Surgery*, like physiology, finds its solid foundation only in anatomy: and its principles, which are few and simple, and easy to be comprehended, have a most important and intimate relation with those of medicine. Your success as physicians will very much depend upon a full and accurate knowledge of the principles and practice of surgery. It is fortunate for science and for humanity that surgery and medicine have not, in our country as in Great Britain, ever been separated. It has never been the fashion with us to divide man, and assign one half to the surgeon and the other to the physician; our schools of medicine have not been satisfied with teaching one half of the science, and you must cross the Atlantic to find the man who would rest contented with knowing half of his profession. With us specialities have never been in favor, for it needs no argument to prove that the eye and the ear are parts of a man, the lungs and the heart have something to do with the

rest of the body, and the skin and the teeth are not beyond the influence of the general laws of the system. " If the foot shall say, Because I am not the hand, I am not of the body ; is it therefore not of the body ? And if the ear shall say, Because I am not the eye, I am not of the body ; is it therefore not of the body ? If the whole body were an eye, where were the hearing ? If the whole were hearing, where were the smelling ? " " Whether one member suffer, all the members suffer with it ; or one member be honored, all the members rejoice with it." It is evident that St. Paul, the christian philosopher, was no convert to the doctrine of specialities." His reasoning and illustrations, though intended to set forth the unity of the church, carry with them an irresistible conviction of the truth I wish to enforce ; and he who supposes that he can prescribe for one organ of the body without an acquaintance with the laws that govern, and the sympathies that bind together all parts of the organism, may derive a useful lesson from the twelfth chapter of the first Epistle of St. Paul to the Corinthians. Surgical diseases are generally medical diseases ; affections of the eye and the ear are often symptomatic of constitutional disease, and the same is true of every other organ : how then can you expect to treat their maladies rationally or successfully, unless upon those general principles of pathology which are founded on the fact that every part of the system goes to constitute one symmetrical whole ?

Chemistry is another of those definite and fundamental preparatory branches, without a knowledge of which your progress will be continually impeded and unsatisfactory. I need hardly remark that this science, which is itself but a department of natural philosophy, with which it is indispensable you should make yourselves acquainted, has of late assumed a marked and decided influence over medical theory and practice. The progress of Animal Chemistry, in the hands of Prout, Berzelius, Tiedemann and Gmelin, Liebig, Dumas, Thomson and others, has laid the foundation of a *solido-humoral* pathology, which promises to survive the wrecks of former partial systems. It has already swept away exclusive solidism, and is gradually building up a composite structure, combining in itself every element and condition of permanence and durability. During the last twenty years, we have seen this science undergoing a most rapid course of development, especially in its organic department ; advancing, step by step, from the simple facts already ascertained to the investigation of those more complex and intricate phenomena that are still shrouded in mystery. Having made us familiar with the effects of forces upon the most important inorganic matters in nature, it has now ventured to endeavor to ascertain and define the exact share which those forces take in the vital processes ; the limit of their sway in the living organism ; and thus to

to distinguish and separate the purely chemical actions from the operations of the ultimate cause of vital phenomena: in other words, from the effects of life itself.

You are aware that these attempts have been denounced by some and ridiculed by others; and the labors of Liebig, Dumas and Berzelius ranked with those of Van Helmont, Sylvius, Willis, Booerhaave and Van Swieten—the *iatro-chemical* philosophers of a past age. But such a comparison is evidently unjust. The iatro-chemists of the sixteenth century made but few, and no accurate, experiments for the purpose of proving their doctrines; and they believed, without exception, that what they saw take place in their crucibles occurred also in the living body; that the actions and reactions of acids and alkalies and salts went on within the living blood-vessels, just as they saw occur in their alembics and test-glasses. Moreover, they did not even understand the alphabet of organic chemistry, and they used chemical terms in a loose and metaphorical manner; so that their language was as indefinite as the results which they pretended to arrive at. For example: they made five principles or simple substances; *mercury*, *sulphur*, *salt*, *phlegm* and *earth*. They gave the name of *mercury* to *spirit*, because it is volatile; as *alcohol*, spirit of nitre, ether: in fine, to every thing which disengages itself from bodies in a state of fermentation. By *sulphur*, they understood whatever was inflammable; by *salt*, whatever could be incinerated; by *phlegm*, any aqueous, insipid fluid, that is unsusceptible of volatilization by a considerable degree of heat; by *earth*, any gross substance that remains unchanged by any test to which we may submit it. They believed that the movements of all natural bodies depend on the first three of these;—namely, *mercury*, *sulphur* and *salt*; while the last two are merely passive. Now, I think you will agree with me that there is very little resemblance between the nature, tendency and results of chemical investigations and doctrines in the sixteenth century and those of the present day; scarcely greater, indeed, than between the astrologers of the dark ages and the astronomers of the Newtonian school of modern times. If we go back to antiquity, we can trace even in the dogmas of the Grecian philosophy, the idea that diseases are produced by some changes in the elements of which the body is composed; and we track this idea from the Jewish legislator to Thales; from Thales to Galen; from Galen to the iatro-chemists of the sixteenth century; and it still reigns predominant in the medical philosophy of our own living writers. But it never, until recently, assumed “the form and pressure” of exactitude and demonstration, so that we can no longer resist the conclusion, that changes in the nature and chemical composition of the fluids, whether from changes in the healthy properties of the chyle, or the retention in the

blood of matters that ought to be discharged through the usual secretory and excretory channels, exerts as great an influence upon the derangement of the corporeal fabric as the state of the living solids, as operated upon by the vital forces.

Why should physiologists have such a dread of these chemical investigations? Is it that they are afraid that some new truths will be discovered, which will sweep away some favorite theory or hypothesis? Truth is precious, in whatever direction it may point; and all truth is consistent: no one truth ever contradicted another; and all truth is beneficial to man. Who does not desire a clearer insight into the intimate nature of the vital processes; a more accurate knowledge of the causes which exert a disturbing influence over them? It is not true that modern chemists, like Sylvius and Paracelsus, refer all physiological and pathological phenomena to chemical principles; they distinctly recognize the existence of vital forces, distinct from the properties of inorganic matter; of organs whose constitution can not be expressed in formulæ, nor their properties accounted for by analysis; but then, they claim that the vital processes embrace besides, the effects of many unascertained causes, the knowledge of which is essential to a complete understanding of the laws and conditions of the organism. After the method of Galileo and Bacon, they endeavor to fix, by numbers, weight and measure, the apparently uncertain and ever variable phenomena of life; for though chemists have long attempted to investigate minutely the constituents of animal and vegetable bodies, it is but recently that quantitative, as well as qualitative analysis, have been successfully applied to physiology and medicine. In this respect, also, it has no resemblance to *iastro-chemistry*. "It is not," says Liebig, in a lecture recently delivered at Giesen, "it is not the true chemist who has endeavored to apply to the animal organism his notions derived from purely chemical processes; he has not had the remotest intention of undertaking the explanation of any really vital phenomenon, upon chemical principles. The only part which chemistry now, and for the future, can take in the explanation of the vital processes, is limited to a more precise designation of the phenomena, and to the task of controlling the correctness of inferences, and insuring the accuracy of all observations by number and weight. Although the chemist is able to analyze organic bodies and tell us their ultimate elements, he does not claim the power of synthesis, or of producing them again by the union of these elements; if, transgressing the bounds of true inductive reasoning, he claims that their properties result from the combination of the elements which he extracts from them; that it is in virtue of any chemical properties they possess, that the fibrine and albumen of the blood, the muscular, cellular and nervous tissue, or the cerebral matter perform their peculiar functions, and

not by means of a vital power, far above and beyond our imitation or comprehension, he forfeits his title to the character of a philosopher, and becomes, so far, a visionary theorist.

Gentlemen, has the chemist done nothing to entitle him to our thanks; nothing to aid us in arriving at a knowledge of the causes and treatment of disease? When he shows us how to destroy noxious effluvia, by which the lives and health of families and even whole communities are often preserved; when he points out how the mysterious circle of organic life upon the surface of our globe is completed and maintained; how vegetables, seizing upon the carbon, the hydrogen, the ammonia of the air, fashion with them all the organized products of the vegetable kingdom; the caseine, albumen, gelatine and fibrine, which animals appropriate as nourishment to their own use, and from them reproduce carbonic acid, water, ammonia, azote, which return to the air to reproduce the same phenomena through all time; when he shows us how solar light and heat, bring into play this unparalleled apparatus, causing carbonic acid to yield up its carbon, water its hydrogen, nitrate of ammonia its nitrogen, thus clothing the earth with verdure and furnishing food for the whole animated creation; when he shows us that animal as well as vegetable bodies are chiefly composed of four simple gaseous elements; that the atmosphere is the mysterious medium which supplies, the mysterious link which connects them, and the chemical rays of light, the wonderful agent by which all the transformations are effected; "how all that the atmosphere yields to plants, plants yield to animals, animals restore to the air: eternal round, in which death is quickened, and life appears, but in which matter merely changes its place and its form;\*\* when he points out to us how the vital fluid is renovated by a chemical change, effected by exposure to the atmospheric air in the pulmonary apparatus; how certain secretions are modified by certain chemical remedies; how the formation of certain calculi depends on the chemical properties of the ingesta, and how they may be prevented by the appropriate chemical remedies; how oxalic acid is developed under certain conditions of the system; how benzoic becomes hippuric acid; how grape sugar is formed in diabetes; when he shows us the composition of the blood, and the changes it undergoes in disease; how certain maladies are produced by the retention of certain morbid matters in the vital fluid; when he teaches us the proximate as well as ultimate elements of animal bodies, the true composition of milk, pus, mucus, bile, saliva, tubercle, muscle, bone, fat, cerebral matter, gelatine, calculi, &c.; when he actually discovers new diseases, the result of deranged secretion tending to an excess, or deficiency, of some of those elements, (as ALBUMINARIA, or Bright's disease of the kid-

\* Dumas.

ney;) when he explains the origin of many maladies and points out the most direct mode of preventing them; when he teaches us the antidotes to a numerous class of poisons, as albumen for corrosive sublimate and acetate of copper, the alkaline sulphates for sugar of lead; the alkaline and earthy chlorides for liver of sulphur; the hydrated per-oxide of iron for arsenic; ammonia and chlorine for prussic acid; when he teaches us how to detect these same poisons, in medico-legal investigations; and how to separate the active medicinal principles of plants and other vegetables; when, in short, we are indebted to him for our knowledge of incompatibles; the adulteration of medicines; all the preparations of pharmacy; our *quinine*, our *morphine*, our *salicine*, and all our vegetable alkaloids, which have given us new power over disease, to say nothing of galvano-magnetism, which is one of the noblest gifts of chemistry to our art. I say, when the chemist has done all this, and more, shall we turn round and warn him off from what we assume to be exclusively *our* own territory; eject him from a claim, which he would seem already to hold by prescription? Shall we forbid him to render such further assistance as he may, to physiology, pathology, or practical medicine; to multiply his experiments; apply his improved modes of analysis to other objects; to extend, and augment, and render more precise, the signification of terms, and ascertain more accurately, the composition of organic substances, with their origin, their properties and their relations? Gentlemen, we should rather hail the chemist as a fellow-laborer, and bid him God-speed in exploring with us the common field of scientific medicine. If he commit errors, as he doubtless may, point them out, if you can; but because he is liable, sometimes, to form erroneous conclusions, do not therefore reject whatever of truth he may be able to discover.

It is necessary, doubtless, to exercise great caution in admitting what are claimed as discoveries in chemistry, recommended, as they often are, by novelty, simplicity, and high authority. The chemist, above all others, is tempted to generalize too far; to apply principles more broadly than facts will strictly warrant. You see this well illustrated in Leibig's late work on animal chemistry, one of the most splendid productions of the age; characterized by extraordinary grasp of intellect and power of analysis, and yet deformed by a crude mass of hypothetical speculations on physiology. Think you that the chemist can satisfactorily explain the narcotic effects of *morphia*, or the febrifuge action of *quinia*, from their chemical composition? Can he tell us why *oxalate of potash* should prove a most deadly poison, whilst the bicarbonate, which differs from it only in containing one equivalent more of oxygen, is perfectly innoxious? And yet Liebig has attempted to do this! There is this excuse, however, that the field is compara-

tively new, the subject intensely interesting, and the reward of discovery great. Many ardent inquirers have recently entered upon its cultivation; and there is danger of forgetting that patient labor is indispensable to the acquisition of that which will endure the test of time. "Great, even in this early stage," says the British and Foreign Medical Review, "and notwithstanding our comparative ignorance, are the benefits that have accrued to the science of medicine, from the prosecution of pathological chemistry; and proportionably great, therefore, is the encouragement we may derive from its further cultivation; as it is impossible to doubt that increased knowledge will add to the precision and fitness of our remedial measures, as well as to the accuracy of that upon which all treatment must be based—our diagnosis of disease."

I have said nothing of the tendency of chemical science to exercise the intellectual powers, and yet it is peculiarly adapted to this end. It gives constant and active employment to the observing faculties: it habituates the mind to the analysis of complex phenomena; to the investigation of causes: it gives constant employment to the reason, the memory, the judgment; and it commends itself to all classes, by its obvious practical utility. I need not commend to your special attention the science of CHEMISTRY.

The skill of the physician lies chiefly in accuracy of diagnosis, and a correct acquaintance with the therapeutical properties of medicinal agents. Nosological definitions and details will be found of little use at the bed-side; but a knowledge of anatomy, chemistry and physiology is indispensable. If you make yourselves thoroughly acquainted with these, you proceed to the investigation of disease by a transition so natural and easy, that you become initiated into the phenomena of morbid action almost without effort, and in an imperceptible manner. It is therefore better not to enter upon the study of fever, and inflammation, and other difficult and complex diseases, until you are thoroughly grounded in these preparatory branches. A different course will only serve to confuse and bewilder, impede your progress, lead to discouragement, and eventually to empiricism. This is essentially a practical age, and the student of medicine wishes, above all things, to have every thing so presented as to be made directly subservient to practical purposes. In haste to arrive at a knowledge of the treatment of disease, he is in danger of neglecting those preparatory branches on which all rational treatment is founded, and the study of which prepares his mind for the successful prosecution of those of a mere complex and difficult nature; of forgetting that there is a connecting link between anatomy and physiology, and practical medicine, which, if wanting, renders the former useless and the latter nothing better than blind empiricism. This is *General Pathology*. The founders of this practical school of

medicine have therefore acted wisely, in making this one of the regular branches of instruction; for it is this, and this only, that elevates our profession from an empirical routine of drug-dosing, to an art based on established principles of science. It is ignorance of pathology, in other words, of the *principles of disease*, which makes a man a quack; and it is an acquaintance with them, that makes him a skillful and scientific physician. A want of this knowledge renders our art indefinite and uncertain: its possession ensures its success and positive usefulness. It is from not understanding the principles of medicine, that the public are led so generally to doubt the efficacy of our art, and are so ready to swallow the most absurd pretensions of the most ignorant charlatans, as well as their medicines. If you are ignorant of general pathology, by which I understand a knowledge of the changes induced in different parts of the body by disease; of the processes or actions by which these changes are wrought; of the causes which originated these processes; and the consequences of the same changes, or the symptoms they occasion: I say, if you have not this knowledge, your practice will be no better than that of old women and nurses: you will be employed in treating symptoms only, without reference to their causes, or, in other words, the true nature and seat of the disease. Owing to the imperfect education of physicians in past years, much of the medical practice in our country, it is to be feared, is of this empirical character; but I am rejoiced to know that it is gradually disappearing, and that in a few years symptom-doctors will be confined to the school of Hahnemann. If you examine, you will find that our most judicious and skillful practitioners are guided by precise views of diseased function and structure; that is, by general pathology; and no practical man of sense treats a disease according to its name merely. True pathology has been well defined to be the embodiment of the result of experience in disease, with a knowledge of structure and function in health; thus constituting the only connecting link between the preparatory sciences and practical medicine.

But having made yourselves acquainted with the causes, symptoms and effects of diseases, it is very evident that if you stop here you are no better off than if you had learned nothing. If you know not how to apply this knowledge to the treatment of disease, you might as well have remained ignorant of all you have acquired. Here then comes in, to crown the superstructure you have so carefully raised, the science of *Therapeutics*—the application of remedial agents to the removal of the existing malady; that consummation so devoutly to be wished, and to accomplish which all other knowledge is to be made subservient. *Therapeia*, or the science of healing, is founded in the principles of physiology and pathology; but it implies a knowledge of every other branch

of medicine; a full acquaintance with the recorded experience of the past; great powers of discrimination and actual opportunities for witnessing disease. She lays under contribution every department of nature—the animal, vegetable and mineral: she ransacks earth, ocean and air, and calls in the other sciences, as hand-maids, to aid in her arduous work. Botany yields up her choicest stores at her command: mineralogy, from the lowest depths of the earth, gives up her earths and ores and metals: animals, from the icy pole or beneath the equatorial sun, are obedient to her call: chemistry seizes them, and by refined and delicate processes of art, extorts from them their hidden virtues; forces them to confess their secret source of action; and then science steps in and applies them all to the relief of human maladies and the cure of disease. Here, gentlemen, is a noble field for study and investigation. Human ambition could scarcely wish a broader theatre for enterprise and action. Notwithstanding all that is known, how much yet remains to be discovered! What trophies are yet to be won, what victories achieved, in our conflicts with disease! The vegetable *materia medica* of our country remains as yet almost unexplored: many valuable remedies are to be ascertained, by those who have time and opportunities to engage in their investigation. And in connection with this branch of my subject, allow me to commend to your attention the study of *Botany*.

Apart from its obvious practical utility, there is no science, the study of which has a more direct tendency to strengthen the intellect; to quicken our powers of observation, discrimination, judgment and memory; to habituate the mind to habits of analysis and profitable reflection, than that of Botany. I do not mean the dry detail of technical terms and learned names, which are but the implements, the machinery of the science; but in addition to these, which serve only as the means of distinguishing, arranging and naming the objects which this grand division of nature presents to our view, I allude also to a knowledge of the elementary structure and internal organization of plants; to their manner of growth; of appropriating nourishment from surrounding media; to the development of their organs; the laws which regulate their distribution throughout the earth; the influence which culture, soil and climate exert in modifying the forms and properties of different species, as well as controlling their geographical limits.

I know that botany, pursued to this extent, would occupy a considerable amount of time; but it would be time well employed: for you would not be engaged merely in the acquisition of an accomplishment, but of a science replete with practical benefits, and indispensable not only to the character of a well-educated physician, but to the duties and pleasures of a rural life. Need I call your attention to the cases in

which botany affords important aid to the sister sciences and the useful arts? Need I show how it is the handmaid of agriculture, and horticulture, and floriculture? how it enables us to select appropriate remedies from the plants which are indigenous to our country or our neighborhood; to indicate what are poisonous and what are inert? I trust that you have no sympathy with those who believe that we already possess, against disease, all the remedies which nature affords; nor with those who, carried away by the attraction of specious generalities, believe that one tonic is as good as another tonic, one alterative as another alterative, one purgative as another purgative. There is great plausibility in the theory that every country spontaneously furnishes remedies for those maladies to which the people of the soil are naturally subject, and that foreign drugs would soon be superceded, if the properties of our own indigenous vegetables were thoroughly understood. It would seem, as Lindley has suggested, that the peculiar climate of a country, the food and habits of the people, together with other circumstances of an analogous kind, predispose them to varieties of disease for which foreign drugs furnish no sufficient remedy, and render that which is relied on in one country unworthy of dependence in another. Certainly, no country on the face of the globe abounds with a greater variety of medicinal plants than our own. There is not an indication which we cannot fulfil with vegetables gathered from our own fields and forests. There is not a disease, within the reach of human skill, which may not be controlled, with equal success, by the natural remedies which a benevolent Providence has spread around us. Along our water-courses and in marshy districts, where intermittents are liable to prevail, grows the *willow*, from which *salicine* (equal in energy, as an antiperiodic, to the *quinia*) is obtained, and which has actually supplanted the latter, in many parts of our country. And so it may eventually be found, that the diseases of every particular district may be subdued by the vegetable remedies natural to that region. Believe not those who tell you that we already possess the most powerful agents in the vegetable kingdom, and that there is therefore no occasion to seek for others; that all we want is a better acquaintance with the remedies we have, rather than the introduction of others whose virtues are as yet unknown. Had this doctrine, now urged by some writers on this subject, been acted on for the last half century, we should lack some of the most valuable articles of the *materia medica*; and if it is to be acted upon in future, farewell to all hope of improvement and of progress in the science of therapeutics.

There is scarcely a year goes by, but what witnesses the introduction of some new and valuable medicine, and generally from the vegetable kingdom: there is scarcely one in which others are not passed by, or

dropped for their inertness, or because we have discovered more efficient agents. You know not where your future destiny may be cast; whether in some distant region of the globe, or some newly-settled part of our own country, where, cut off from all foreign pharmaceutical supplies, you may be thrown upon your own resources. You will then find it very convenient to have such a knowledge of botany as to be able to identify the plants that may grow in your vicinity. Indeed, when we consider the extent to which the adulteration of medicines is now carried, as scammony, jalap, cinchona, sarsaparilla, senna, rhubarb, and many other articles in common use, it is hardly too much to expect that more efficient substitutes may be found growing almost at our own doors. As I shall have much to say on this subject hereafter, I will only add, in this place, that our indigenous *materia medica* invites you to its exploration, as a field rich in treasures, abundant in promise, and one that can not fail to reward abundantly those who zealously cultivate it.

I have said nothing of the favorable influence which this study of botany exerts upon the bodily health, nor of the intellectual gratification it so richly supplies. Who can doubt that, had our first parents remained in their original state of innocence, their only study would have been the works of the Creator, as manifested in visible nature? Placed in a *garden*, whose beauties, as exhibited in its vegetable productions, the imagination can but poorly shadow forth; with a specific command from the Almighty "to dress and to keep it;" surrounded by all manner of trees "pleasant to the sight and good for food," with innumerable objects attractive by their beauty, wonderful by their construction, or interesting by their economy; his days would have been passed in surveying the material world, while his heart would have been enlarged and his reason exercised, in meditating on all that he saw. Each new discovery would have but increased his veneration for the Author of such wonders; and his contemplations would have been those of the inhabitants of heaven. The study of nature was coeval with the creation of man, and was the employment which the Creator himself devised as the source of human happiness. But although a blight has passed over the spirit of man, his nature is not altogether changed: though care, and trouble, and sickness, and death have fallen to his lot, yet this remnant of primeval pleasure still remains; the volume of nature still lies open before us, in all its variety and all its beauty; and if we cannot escape altogether the consequences of original sin, we can, at least, find a solace and enjoyment in the same occupations and pursuits for which man was originally destined.

Time will not permit us to dwell on the other branches of science embraced in the curriculum of instruction pursued in this institution; nor indeed is it necessary. You doubtless justly appreciate the impor-

tance of them all, and agree with me in the opinion that none of them can be neglected without serious disadvantage, as connected with a thorough understanding of your profession. As I have called your attention to some of the sciences which ought to be embraced in a complete course of medical education, allow me, in conclusion, to offer a few reflections on the spirit and manner in which your studies ought to be pursued, if you wish to arrive at any great degree of honor or of usefulness.

In the first place, I need hardly observe that diligence is necessary to the acquisition of knowledge. Nothing great, nothing worth possessing, can be obtained without labor: it is the grand law of our nature. Mental labor is the peculiar distinction and privilege of man. We talk of self-educated men; but every man who has an education has educated himself. The office of the teacher is but to draw forth the latent powers of the mind and set them to work: all he can do is but to point out the means of obtaining knowledge; to rouse and guide the awakened intellect into the best path for obtaining the end desired; and all the rest is self-performed. The mind, no more than the body, can acquire strength by having every thing done for it. Each organ and each faculty must work out its own vigor and its own range of action; must attain its perfection of strength by its own repeated trials and efforts. "The world of mind, as well as the world of matter, is shapeless and void for all the purposes of man, until he lays upon them the hand of labor. The materials only are given us, to be wrought and shaped by ourselves to our own individual purposes. Absolute truth, ready-made, no more presents itself to us in one department, than finished models of mechanism, ready-made, do in another."<sup>\*</sup>

Cultivate a spirit of observation, as well as the habit of it; for it will go with you through life, and prove of inestimable value. There is nothing in which men differ from each other more than in the use which they make of their eyes. You see one man travel leisurely through a country, and when he has arrived at his journey's end he can tell you of nothing, scarcely, that he has seen: he can give no intelligible description whatever of the face of the country, its natural curiosities or artificial structures: nothing remarkable has excited his attention, and his mind remains a blank, like the surface of a mirror from which every thing glances and nothing penetrates. Another individual goes over the same ground; he sees the same objects; he scrutinizes every thing that comes under his observation:—the geological structure, the nature of the soil, mode of tillage, kind of productions, manner of building, of fencing, of irrigation, of drainage, of fertilization: every thing in nature or art is treasured up in his capacious memory, ready

\* Dewey.

for use whenever circumstances call for it. And so it is in the practice of our profession. I have sometimes, when called in consultation, found physicians who could neither tell me the state of the pulse, of the skin, of the tongue, or of the secretions: nothing whatever as to the precise condition of the patient could be learned from them; a few barren generalities, of no practical importance, being all that could be ascertained. How different from what we often meet with in other practitioners! With them, a habit of close observation has become, as it were, a second nature: nothing is too minute or trifling to escape their notice: every thing that can possibly furnish the slightest pathological sign, or throw the least light on the seat and nature of the disease, is marked, and weighed and scrutinized; and the mind, habituated to such habits of close analysis and of rapid induction, seems to grasp, as by intuition, the entire features and character of the disease; and the entangled web of morbid action is thus unraveled, with almost the celerity of thought. To the practised eye of scientific observation, the human body becomes, as it were, transparent; every organ and every function stands plainly revealed to the mental sight: while to the careless and unobservant physician, nothing appears; but disease is wrapped in doubt, and mystery, and darkness palpable. The latter resembles, in many respects, the "mystery man" of the western Indians; and his prescriptions are about as likely to have the desired effect, as the incantations and jugglery of the red "medicine man" of the Rocky Mountains. A talent for observation is to be acquired: it is the result of training. The senses all have to be educated, like the reasoning and moral powers. The eye, the ear, the touch, the taste, the smell, all acquire acuteness by frequent exercise; and that physician or surgeon who has the nicest perceptions, will, other things being equal, excel most in diagnosis. Disease, to be studied to the best advantage, must be seen and felt; and you must endeavor to overcome all that repugnance to witness unpleasant sights and painful operations and maladies, which is so natural to us all. It was an omen of the future distinction of the man, when Ambrose Paré, wishing to witness an important surgical operation at the Hotel Dieu of Paris, passed a severe winter's night upon the cold stone steps of the stair-case of the operating theatre, in order that he might obtain a good view of the operation when the doors should be unbarred in the morning. The most distinguished men in our profession have displayed, in early life, the same fondness for observation; and no obstacles have been sufficient to debar them from the enjoyment of sufficient opportunities.

The grand object, in attending a systematic course of medical lectures, is to obtain a thorough knowledge of the principles and facts of medicine; to make yourselves acquainted with its theory, and those great land-marks which may serve as a guide to practice; and to pre-

pare you for observing, to the best advantage, the actual phenomena of disease. You come here to qualify yourselves to see with intelligence; to learn how to read, and understand, and interpret the great book of nature, when it shall be opened before you: in short, to prepare for clinical study. Such is the great end to be attained in attending medical lectures; and a person might as well undertake to read Hebrew before he had learned the alphabet, as to study clinical medicine before he is well grounded in the important facts, laws and principles of our art. I believe it is this haste to visit the sick and see practice before young men are well grounded in the theory of medicine, that leads so many into the paths of empiricism; that causes them to speak disparagingly of a science whose principles they never knew, and dishonor a profession for which they were never properly qualified. I assure you, gentlemen, I have never known an individual who had been thoroughly imbued with medical science, and fully taught in those great truths which lie at the foundation of the healing art, ever speak lightly of his profession, or enrol his name among the disciples of system-builders and reformers. Such a man can clearly perceive that no exclusive system in medicine can possibly be true; and he rejects them all as alike contrary to sound reason and the ascertained laws of the organism. Banishing all prejudice from his mind, he examines every thing cautiously, and submits every thing to the test of actual experiment. Neither captivated by theory nor influenced by hypothetical speculation, he yields not his mind to authority; but gathering facts on every side, like Rush, he is not ashamed to learn from an Indian, an old woman or a nurse. He lays all under contribution, and all has to pass through the alembic of his discriminating understanding; the ordeal of that intellectual fire that separates the golden ore of truth from the dross of false hypothesis and error; and thus he goes on, adding fact to fact and store to store, till he is thoroughly furnished for the observation of disease at the bed-side.

Clinical instruction is the connecting link between the knowledge of the principles of medicine and the personal application of that knowledge in actual practice. An acquaintance with the different branches of medical science is of but little avail, unless we know how to apply that knowledge to the treatment of disease. The great body of the medical profession in the United States have been regularly trained to the practice of medicine under the eye of their respective preceptors; and during the years of their pupilage, abundant opportunities, not only of seeing, but of treating disease, are thus supplied to thousands of medical students, scattered as they are over the whole extent of our land; and while they are thus deriving useful lessons of practical wisdom, they relieve their teachers of a share of the heavy burden of practice, while they render the most important services to the suffering

patients. Accustomed to the frequent performance of all the minor operations of surgery, of weighing, dispensing and administering the different articles of medicine, as well as watching their effects upon the sick, they are gradually initiated into all the secrets of the art; so that when the period of apprenticeship has closed, they are prepared to enter upon practice, to assume the responsibilities of life and death, with a self-relying confidence which nothing but experience can possibly supply. It is this personal observation and handling of disease, during the period of their apprenticeship, that gives such a practical cast to the mind of American physicians, and renders them the most successful practitioners of the healing art.

I would caution you particularly against becoming wedded to any exclusive sect or system in medicine; for nothing tends more to prevent all improvement, to contract the mind, and narrow the views, and render men illiberal, captious, discourteous and mean-spirited, than the adoption of some exclusive theory or doctrine. If you desire to look into the merits of Mesmerism or of Homœopathy, do so with all candor and fairness; but beware, as you value your usefulness, your reputation, your self-respect, how you adopt them as the polar stars of your medical creed, or view them, as some do, as special revelations, made in these latter days, for the physical salvation of man. To young men in particular, who can not be supposed to have surveyed the whole medical horizon, and whose minds, therefore, are not prepared to sit in judgment on different systems of medical philosophy, modesty and humility are very becoming. They should neither subject themselves implicitly to the *verba magistri*, nor should they become the partisan supporters of systems and doctrines in medicine, to the exclusion and condemnation of all others. Judicious and philosophical *eclecticism* will be found most conducive to your progress, as well as usefulness in after life; as it is most in accordance with a wide and impartial survey of the phenomena of health and disease, of the laws of physiology, and with the established principles of pathology and therapeutics.

I have endeavored, in the preceding discourse, to indicate such a plan of education as will qualify you to observe, think and reason for yourselves. But, if you are to follow the example of some, and swear in the words of Hahnemann, such a system of mental discipline is entirely unnecessary. This celebrated reformer, indeed, has himself said that his disciples have no business to think for themselves; that all they have to do is to believe what he has written. Judging from what I have seen, I conclude that his followers acquiesce in this claim: at any rate, this I will affirm, that the practice of medicine according to his system, is as much a mechanical art as the cutting of a coat or mending of a watch; for while the tailor takes the measure of the outer man, by tape and rule, the homœopath does the same as to the inner, according to the

exact rules of Hahnemann's measure ; and then both proceed according to the established principles made and provided for their respective use.

I would urge you all to cultivate a spirit of patient investigation. Without this, you may store your memories with the diversified opinions of others, but you will have none of your own. It was a frequent saying of the immortal Newton, that if he possessed any habit or endowment in which he excelled the generality of men, it was that of patience in the examination of the facts and phenomena of his subject ; and such, too, was the humility of this great philosopher, that after all his discoveries, he used to speak of himself as having been all his life but " a child gathering pebbles on the sea-shore."

When we consider that we are engaged in investigating a science which treats of the complex and ever-changeable relations and properties of matter, embracing an almost infinite variety of objects, in which there is great difficulty in tracing effects to their true causes, and causes to their true effects ; in which the phenomena of health and disease are ever fluctuating ; in which the controlling element is an intangible, mysterious agent, called a *vital principle*, whose scope, and power, and influence can neither be justly estimated nor efficiently controlled ; that we are unable to estimate the influence of the peculiarities of age, and sex, and temperament of body and mind, which produce great uncertainty in our investigations, and qualify, in an important manner, the effects of remedial agents, and thus causing great difficulty in the application of acquired knowledge to new cases ; when we consider that the objects of medical study are to acquire an extensive collection of well-authenticated facts ; to arrange, classify, combine or separate these facts ; to trace among the facts, sequences or relations, the relation of cause and effect ; and lastly, from an extensive collection of facts to deduce general principles,\* we shall readily perceive that a spirit of patient, philosophical investigation, is indispensable to success in the study and practice of the healing art.

Some are led into error from mistaking the true objects of medical science, which are, as I have observed, to ascertain facts and trace their relations to each other. If we go beyond this, and seek for the powers which regulate these relations, we involve ourselves in error and perplexity ; for we are aiming at the attainment of what is beyond the sphere of our limited capacities.

Be on your guard against becoming sceptical as to the resources of our art. As you mingle with the world, you will hear much said respecting the uncertainty of medicine ; great praise awarded to certain systems of quackery ; and very illiberal remarks as to the usefulness of our profession. Sorry I am to say, that these opinions often come from men of reputed intelligence, from whom we have a right to expect

\* Abercrombie.

better treatment: but as they generally originate in ignorance, and its sister prejudice, we should pass them by unheeded. There is really no more uncertainty in the result of medical practice than there is in that of the law: there is no greater variety of opinion on subjects pertaining to our science, among educated medical men, than there is among divines respecting the doctrines taught in holy writ. There is no subject, except perhaps a mathematical demonstration, on which human opinion perfectly coincides. What are called the exact sciences, have much unexactness in them. Great discrepancy of judgment exists even in relation to the ordinary affairs of life; as, the best modes of communicating instruction to the young; the different modes of cultivating and fertilizing the soil, of sailing a ship, of building houses, railroads and steam engines. And as we cast our eyes over the length and breadth of our land, why is it that we see such immense masses of human beings congregated together; such passions agitating them and moving them to and fro, as the waves of the sea when agitated by a tempest? Why those fierce discussions; the loud and animated debate; the heat of enthusiasm; the eye of fire; the contributions of money? Ah! gentlemen, there are subjects besides those of medicine, on which men differ in opinion. Because mankind can not agree as to what form of political government is best fitted to promote the happiness of a people, or as to the great measures of public policy which that government ought to adopt and carry out into practice, they do not therefore infer that they would be better off without any form of government at all, or any decided measures of national policy. So it is in medicine: if we learn all that our finite capacities will allow us to do, respecting that marvelous mechanism, the human body, and the mysterious laws which control its peculiar functions; the phenomena of health and disease; and then apply this knowledge, according to our most enlightened judgment, to the removal of human maladies—we have a right to expect, from our fellow-citizens, that they will be satisfied; that they will cheer us on, in our arduous labors, with their smiles and approbation. And this I confidently believe they will do. By our fruits do we ask and expect to be judged: if these are like the apples of Sodom, we deserve no better than a Sodom's fate. I trust that we have no pride of opinion to bind us to the maintenance of any one particular sect or hypothetical system more than another, except as it seems to us more consonant with facts, and reason, and experience; and while we draw from all systems, all theories, all doctrines, whatever of truth they may contain, we may hope to be excused from enrolling ourselves as disciples of any particular school which is founded on views narrower and more illiberal than those we have adopted, and those which we believe to be established by nature herself.

As you become engaged in the active duties of your profession, you

will be surprised to find the many tricks, and artifices, and manœuvres of the ignorant pretender, to gain the confidence of the public and win them over to his own views and interests. The *pill-vender*, for example, takes advantage of the popular belief in the humoral pathology, to sell his nostrums; the *botanic doctor* and the *Thomsonian* excite the fears of the public by denouncing all mineral substances as poisons, while he is himself employing those from the vegetable kingdom, which possess ten times the power of the articles he condemns; the *homœopath* cries out against *allopathy*, as if this term embodied any particular system or doctrines in medicine: and, lastly, comes in the *hydropath*, or the water-doctor, who goes for doing away with all medicines: and then they all appeal to *experience*, as the grand test of the truth of their respective systems, and of the efficacy of their different modes of practice. It is indeed remarkable that the public should so generally recognize the validity of their claims, when they really have no foundation whatever to rest upon, except the assertions of those who make them; that they should first swallow the reports of wonderful cures with which our newspapers are filled, and then swallow the drugs which are said to have effected the cures. It would really seem, when we consider the extent to which these pretenders impose upon the public, that human credulity had no bounds; and that the more presumptuous and absurd any system or mode of practice is, the more likely it is to gain the confidence and support of the public.

It is a pitiful trick of ignorance and cunning, to exclaim against learning and thorough scholarship in our profession; against *book-knowledge*, as if books were not the only authentic records of the experience of all time. I have always observed that the man who prides himself in his experience, and denounces books, is generally far inferior in knowledge to the diligent student, and far less successful as a practitioner. Medical opinions must have their original foundation in authority; and if we are to have no information but that derived from our own innate thoughts, reflections and observations, how are we ever to be qualified to begin the practice of medicine? No man has ever denounced all book-learning more than the inventor of the *Thomsonian* system of medicine; and yet he has written a very large book, in which he has embodied his whole system, and which, with a patent from the United States patent office, entitling its possessor to practice in any part of the United States, is sold for twenty dollars.

Individual experience is but as a drop compared with the ocean; a grain of sand to the earth of which it forms an infinitesimal part. Unless enlarged, improved and corrected by that of others, it will prove of very little value indeed. An aged nurse, who has all her life-time ministered to the sick, has had ample experience; but who would trust her in the sole management of a case of serious disease? The well-read phy-

nician can draw upon the vast stores of the recorded experience of all ages; while he who trusts to his own resources, has no better, or safer guide, than his own imperfect, varying and uncertain experience. It was a true remark of the celebrated D'Alambert, that "he is not the best physician, (as people generally suppose,) who blindly and hastily accumulates a vast store of personal experience; but he who makes the most careful observations, and who joins to those observations a much larger number, made in every age, by men animated with the same spirit as himself. These observations are the *true experience* of the physician."\*

Guard, therefore, against this vulgar prejudice that thorough scholarship in the literature of your profession will disqualify you for its practical duties. Show to the world that there is no incompatibility between science and learning and practical skill; between knowledge, however obtained, and the practical application of that knowledge. I regret to know that this monstrous opinion, which originates in a desire to shield ignorance, and indolence, and imbecility, is countenanced by any regular practitioners of our art. I trust it will receive no support at your hands. It is too late in the day for voluntary ignorance of what others have done or are doing in medicine, to pass for wisdom; and the opinion is gaining ground, (thanks to the increasing intelligence of the age,) that he who reads most, and who reflects most, other things being equal, is the best qualified for the successful management of disease.

But while you guard against scepticism in our art, do not run to the opposite extreme of credulity, and expect more from medicine than it actually promises, and thus be equally disappointed. You will not forget, that it is an *abstract*, rather than a *perfect* science; that its principles do not, from the very nature of things, admit of actual demonstration; that the machinery by which, and the materials upon which, it works, are of such a character as to preclude the very possibility of unerring, uniform and strictly mathematical results. Cabanis has truly observed, that "absolute certainty, in the full acceptation of the term, appertains exclusively to objects of pure speculation, as the mathematics; in practice we must content ourselves with approximations more or less exact, and which, on this account, might be called *practical certainties*. With these we must rest satisfied, for they are the only ones which nature permits us to attain, and are sufficient to mankind in order to secure its preservation." Hippocrates had a just appreciation of the difficulties of our science, for, he remarks, "you can discover no measure, no weight, no form of calculation, to which you can refer your judgments, in order to give them absolute certainty. In our art there exists no certainty except in our sensations."

Let me also urge upon you to cultivate a love for the profession of your choice; a profession in which you purpose to employ your time

\* Ecclaircissemens sur les Elemens de Philosophie VI.

and talents during the period of your earthly existence. You will doubtless, many of you, have difficulties to encounter, but resolution, energy and perseverance, will overcome them all. You will meet with many trials and disappointments, but a confident reliance on the wisdom and benevolence of a higher Power, will enable you to bear up against them all. You can not all expect to attain to distinguished eminence; nor is it necessary for usefulness or happiness that you should:

"He is the happy man, whose life even now,  
Shows somewhat of that happier life to come;  
Who, doom'd to an obscure, but tranquil state,  
Is pleased with it, and were he free to choose,  
Would make his fate his choice."<sup>\*\*</sup>

Ours is a privileged profession. When pursued with proper motives and a proper spirit, it improves the heart as well as the intellect; and the duties to which it calls us awaken the best emotions of our nature, foster the benevolent affections, and promote all the charities of social life. As there is no profession that holds out greater inducements for industry and honorable exertion than ours; none, the conscientious pursuit of which carries along with it so full and abundant rewards; so, also, as I have already remarked, there is none which offers such frequent opportunities of doing good; of manifesting that kindness and disinterested benevolence that blesses the giver more than the recipient. When prosecuted, I say, with correct feelings and motives, the study as well as practice of medicine is pre-eminently calculated to advance our moral as well as mental improvement. Who that has witnessed the remorse of the dying penitent, looking back on days mis-spent, time misimproved and privileges abused and perverted, but will be prompted to faithfulness in the discharge of his own personal and relative duties? It would seem that he whose heart is not made better by scenes like those which we are constantly witnessing, would not be moved though one should rise from the dead. Every day, the practising physician sees how vice carries along with it its own punishment; how the iniquities of the father are visited upon the children to the third and fourth generation; how unbridled passions deform and break down the bodily tenement, which temporarily shelters the immortal principle, so defaced and polluted; how, even in this world, virtue meets its just reward. Who, so often as the physician, is prompted to reflect upon the uncertainty of human health and human life? who so often reminded of its extreme brevity—"so scantily proportioned to our moral wants and our intellectual aspirations?" Who so often beholds "the silver cord loosed, the golden bowl broken, the pitcher broken at the fountain, the wheel broken at the cistern?" And who, therefore, has greater reason to abide in the conclusion of the preacher: "Fear God and keep his commandments; for this is the whole duty of man?"

\* Cowper.